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Hab. same as the former.

4. *RHINOPOMA Carolinense*, Geoffr. As, from want of a good description, I am not certain with regard to the determination, I will communicate the description of the animal in my possession.

Fur brownish gray. Above darker than beneath. Base of the hairs whitish. Ears wide, naked, only haired outwardly at the cohesion, and inwardly in front where the concavity commences. 6—7 warts on the front margin of the ear. Furnished with longer bristle-hairs on the nasal bridge, at the toes of the hind feet, and at the anus and sexual orifice. Lip large, projecting far beyond the inferior lip. Wings blackish brown. The membrane between the anterior and posterior legs is, in the vicinity of the body, beset with small tufts of hairs. The margin of the interfemoral membrane has, in the neighbourhood of the tail, two tooth-like projections, of which the exterior one originates from the end of the spur. Tragus 4-angular, at its inner margin somewhat sloped. Length of the entire animal $4''$, of the body from the tip of the nose to the commencement of the tail $1'' 11'''$, of the tail $2'' 1'''$. Usually the tail is inclosed $8'''$, and free $5'''$. Spur $9'''$ long. Breadth $9\frac{3}{4}'''$.

Hab. During daytime, beneath the roofs at Fundador.

IV.—*Horæ Zoologicæ*. By SIR W. JARDINE, Bart.,
F.R.S.E. & F.L.S., &c.

No. IV. *Remarks on the Structure and Habits of* *Lepidosiren annectens*.

As stated at the commencement of these ‘*Horæ*,’ and implied by our motto*, we consider them intended to convey whatever information, whether partial or complete, may come in our way, and tend to illustrate zoology. The appearance of Professor Owen’s important and carefully wrought paper upon *Lepidosiren annectens*, printed in the last volume of the Transactions of the Linnæan Society†, had been some time looked for, and the interest which its perusal excited was still further heightened by the loan of the other specimens of the remarkable animal which Mr. Weir discovered on the Gambia, and which have been kindly trusted for some time in our possession by the sister of that gentleman, now residing in Edinburgh. Upon examination of these specimens, some of the external parts appeared to vary from the figure and description given by Mr. Owen; and as every observation relating to the structure of an animal so curious must draw out some inference associating with those around it, we shall describe them minutely. But for the sake of those who may not have access to the valuable Transactions alluded to, which, through the various changes incident to scientific societies, especially

* See Annals, vol. iv. p. 160.

† Vol. xviii. part 3. p. 327.

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to such as are now becoming venerable from long duration, have maintained their standard excellence both in illustrations and in the high character of communications, and also for the sake of our correspondents in distant countries, it may be right, first, shortly to run over the history of this singular genus, and the results at which Mr. Owen has arrived in his recent examinations.

The genus *Lepidosiren* was formed by Professor Natterer, from an animal discovered in the rivers, or rather in the swamps of South America. Two specimens only were obtained; the one was found in a swamp on the left bank of the river Amazon, the other was taken in a pond near Borba, on the river Madeira, and they were described in the 'Annals of the Museum of Vienna,' under the generic title above named. In 1837, specimens of a remarkable animal were brought from another continent, the vicinity of the river Gambia, in Western Africa, by Thomas C. B. Weir, Esq.; and one of them being presented to the Royal College of Surgeons in London, has served Mr. Owen for the account which has just now been published*.

In its skeleton the Gambia species is partly osseous, partly cartilaginous; the bodies of the vertebræ, for instance, are not ossified. The articular surface of the lower jaw presents a more complicated structure than is usually observed in Fishes and Reptiles. The ribs are thirty-six pairs, all simple, slightly curved slender styles. The tentacles or rudimentary fins are many-jointed; the colour of the bones is green, and altogether it offers a most singular and interesting combination of the cartilaginous and osseous types. The muscles of the trunk present all the simplicity and uniformity characteristic of the class of Fishes. There are no pancreatic cæca. The intestine is traversed throughout by a spiral valve. The branchiæ resemble in form those of the *Siren*, consisting of separate elongated filaments, attached only by one extremity to the branchial arch; but these extremities are fixed directly to the branchial arch, and not to a common pedicle extended therefrom, as in the *Siren*. Viewed with a moderate lens, the tripinnatifid structure is beautifully seen in each branchial filament. Thus, although these organs correspond in all essential points with those of the true Fishes, yet the gills approximate, in their filamentary form, to those of the Perenni-branchiate Reptiles. The female organs of generation present

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In all its organs, with a single exception, it is considered as almost intermediate in structure; that exception exists in the organ of smell, a character "which is absolute in reference to the distinction of Fishes from Reptiles. In every fish it is a shut sac, communicating only with the external surface; in every reptile it is a canal, with both an external and internal opening."

Further, Mr. Owen considers the *Lepidosiren* as typical of a new family, and forming a link to connect the higher Cartilaginous Fishes with the Sauroid genera *Polypterus* and *Lepidosteus*; at the same time, it makes the nearest approach in the class, to the Perennibranchiate Reptiles.

The specimen which we have examined was in total length $8\frac{1}{2}$ inches, and the body was more thickly and decidedly spotted than that represented in the Linnæan Transactions. The spots extend as far forward as the origin of the upper fin, but are continued still further in indistinct cloudings; they take the form of irregular blotches, and are largest, most distinct, and in greatest numbers near the caudal extremity; this may be a variation incident to the animal, in the same way that the spottings on various other fishes seldom agree. The caudal fin or membrane arises gradually from the body, and the scaling is continued apparently as far as the rays reach; above this it becomes like a thin membrane, delicate and transparent, and terminates in a minute and fine point. The whole appearance in fact of this part is more like that of the membrane which is produced at certain seasons upon some species of *Triton*.

The extremities, or fins if they may be so termed, present some differences when compared with Professor Owen's figure and description. They are each regularly barred with brown, or probably, in a living state, with dark olive. In the description alluded to, "the pectoral tentacles" are said to be "somewhat shorter and more slender than the ventral ones; the former are two inches, the latter two inches four lines in length*." In our specimen it is just the reverse: the principal ray of the pectoral tentacle is attenuated to a thread-like point, and is 2 inches long; the posterior is only $1\frac{5}{8}$ ths inch in length. They also present another discrepancy: the principal pectoral tentacle is accompanied above by two short and still more rudimentary members, which do not seem to have been

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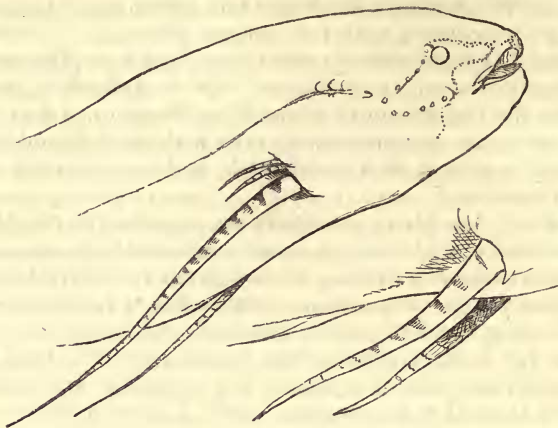
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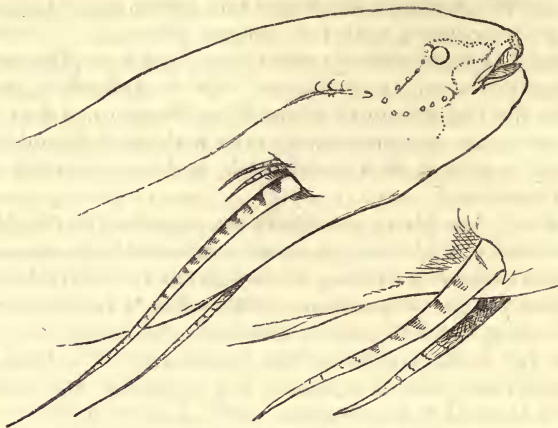


being permitted to make any dissection, it has been impossible to determine whether they were also supported by cartilaginous rays; it is probable that they may not, or that they are very slight, but their presence seems important, as presenting a passage even more modified from the true fin composed of several rays, to the state of a single tentacle destitute of any palmation or approach to the structure of a more perfect extremity. The posterior tentacle is single, but is much more strongly formed than the long ray of the anterior; it presented no other differences except in comparative length. Can the additional pectoral tentacles be a sexual difference?

The pores and ducts upon the head are disposed nearly as we have endeavoured to represent them in the woodcut. They are very large, and supply a large quantity of mucus necessary for, or at least assisting in, the preservation of the animal when it has retired from, or is deprived of, its native element. Above and in front of the eye they are tortuous and apparently continuous canals, and run backwards to commence the lateral line; and there is an angular one above where each nostril is situate, the place of which can easily be detected by looking with a magnifier at the snout, placed between the observer and the light.

The progressive motions of this creature we should conceive to be performed entirely by the caudal or posterior half of the body, their direction being regulated by the tentacles. We can fancy them to be very nearly similar to those of the Tritons,

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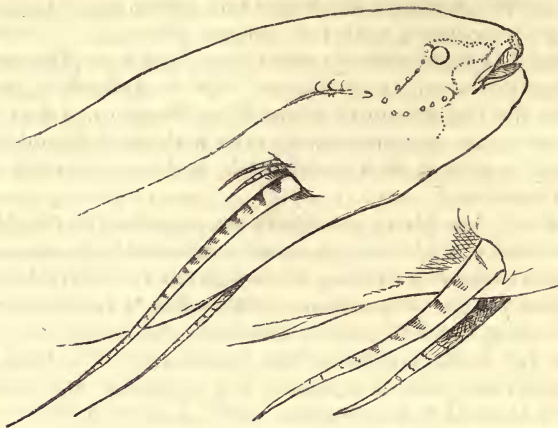


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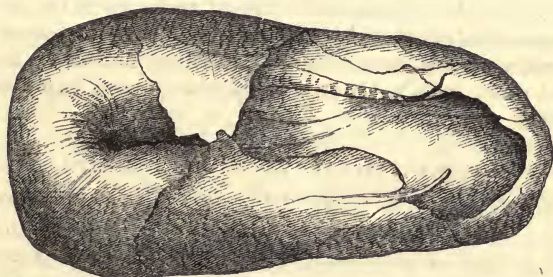
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which advance by a wriggling or sculling motion of the tail, and direct themselves by their small anterior members, which also are used to assist in raising themselves in the water upon any body or plant, and we should scarcely consider these members at all applied or used as organs of touch.

If the structure of this animal is remarkable, so also are some habits in its æconomical history, but we have to regret that our information on these points is still very imperfect. Miss Weir, in allowing us to examine the specimens of the fish, accompanied them with the following note, and a piece of the hard clay alluded to in the Transactions of the Linnæan Society *, bearing the impression of the animal as if it had lain for some time imbedded in it, and with the earth in such a state as to allow the form of the cast to be retained: "Fish taken in the summer of 1835, on the shore of Macarthy's Island, about 350 miles up the river Gambia. They were found about eighteen inches below the surface of the ground, which, during nine months of the year, is perfectly dry and hard, the remaining three months it is under water. When dug out of the ground



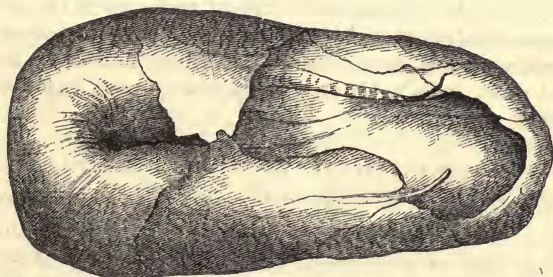
and put into water, the fish immediately unfold themselves and commence swimming about." They are dug up with sharp stakes and are used for food; the accompanying woodcut represents the manner in which they are folded up at the time they are procured; it is drawn of the natural size, from a second specimen preserved in spirits, which seemed to have been rolled up in dried leaves, or in the leaves which might have accumulated at the bottom of the water of the inundated ground; several adhered to it, and were kept in their place by means of a large supply of mucus which still invested the specimen, and may serve as a provision to assist in preserving life during the torpidity or hybernation of the animal.

Note.—Since writing the above observations, we have perused the important paper by M. Bischoff from the translation published in a late number of the '*Annales des Sciences Na-*

* Note in vol. xviii. part 3. p. 328.

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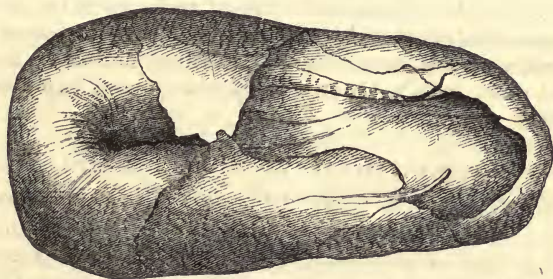
and put into water, the fish immediately unfold themselves and commence swimming about." They are dug up with sharp stakes and are used for food; the accompanying woodcut represents the manner in which they are folded up at the time they are procured; it is drawn of the natural size, from a second specimen preserved in spirits, which seemed to have been rolled up in dried leaves, or in the leaves which might have accumulated at the bottom of the water of the inundated ground; several adhered to it, and were kept in their place by means of a large supply of mucus which still invested the specimen, and may serve as a provision to assist in preserving life during the torpidity or hybernation of the animal.

Note.—Since writing the above observations, we have perused the important paper by M. Bischoff from the translation published in a late number of the '*Annales des Sciences Na-*

* Note in vol. xviii. part 3. p. 328.

which advance by a wriggling or sculling motion of the tail, and direct themselves by their small anterior members, which also are used to assist in raising themselves in the water upon any body or plant, and we should scarcely consider these members at all applied or used as organs of touch.

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V.—*Commentary on Mr. G. R. Gray's 'Genera of Birds.'*
1840. By H. E. STRICKLAND, Esq., M.A., F.G.S., &c.

[Continued from vol. vi. p. 423.]

P. 26. THE date of Thunberg's genus *Brachyurus* (1743) seems to be a misprint; but not knowing in what work it is defined, I am unable to rectify it.

Myiophonus ought, I think, to be placed among the *Turdinæ* near *Petrocossyphus*.

The Rock Thrushes were first defined by Boié in 1822, under the name of *Monticola*, and afterwards altered by him in 1826 to *Petrocossyphus*. The former name ought therefore to stand, as authors ought no more to alter their own generic names when once published than those of others. But should there be any insuperable objection to the name *Monticola* (of which I am not aware), then the name *Petrocincla*, Vig., 1825, has the next claim. Bonaparte divides the Rock Thrushes into two genera, *Petrocincla* (*P. saxatilis*) and *Petrocossyphus* (*P. cyaneus*). There seems not to be sufficient ground for this separation; but if adopted, a new name should be given to *P. cyaneus*, because the name *Petrocossyphus*, Boié, is a mere synonym of *Petrocincla*, Vig., and should therefore be cancelled.

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